I need not say that any suggestions coming from an observer of such experience as M. Houzeau deserve the attention of the now many earnest students of the subject of "Mind in the Lower Animals;" and I therefore make no apology for bringing under the notice of your readers certain remarks contained in the letter aforesaid.

In the first place, M. Houzeau begs to direct attention to "the high importance of sparing—at least for observation—what remains of anthropoid animals in Asia and Africa. It is my deep regret that there are none in the country where I live" (Jamaica); "and that I am thereby deprived of an opportunity to study them. They should be tamed, domesticated, and studied in their own climate—at home. The gorilla, for instance, should be perpetuated in Guinea in domesticity. As I stated in my book, it does not appear impossible that apes might learn to talk. Should the attempt succeed even partially, what would not be the bearing and importance of it physiologically and historically? Could not some means of study be devised in the English colonies? To save the Anthropoids from destruction, and to promote the study of their mental capacity, is worthy surely of the earnest exertions of naturalists."

I quite concur with him as to the desirability of educating by domestication—so far as possible, and studying the results of such education in the anthropoid apes, and indeed the whole group of the Quadrumana. We know what has been the result in the dog of centuries of association with, and training by, man; though even in that familiar animal we do not yet know the extent of his capabilities, because training in certain directions has scarcely been attempted. Man has, for his own ends, directed special attention and effort to the development, in the dog, of his power of scent, swiftness, vision, courage, watchfulness, and other qualities that render him useful in the chase, as a watch-animal, as a companion, and so forth. But no similar persistent efforts have been made to cultivate, for instance, his moral sense—to produce an animal good in a moral point of view—honest, affectionate, benevolent, conscientious, in the highest degree. And yet that it is quite as possible to produce or educe moral greatness or goodness as physical swiftness or muscular strength, I am firmly persuaded. Notwithstanding all that has been said of the superior intelligence of the dog, horse, elephant, ant, and bee, I believe that were as much care bestowed on the training of the moral qualities of many monkeys or apes as is given to the instruction of the pointer or setter, the homing pigeon, piping bullfinch, or talking parrot, or to the training of the race-horse, results of a startling kind would be attained, or would be shown to be attainable. There are certain respects in which apes and monkeys approach more closely to man than do the dog or the other animals just mentioned: they possess potentialities or capabilities of which some of the almost marvellous stories told us by reputable traveller-naturalists give us but a glimpse.

I cannot, however, discuss that or other subjects in comparative psychology here, hoping, as I do, to have fuller and more fitting opportunity in a forthcoming volume of the "International Scientific Series" of Messrs. H. S. King and Co.

M. Houzeau expresses surprise that, at the present day, the belief should be almost universal that, while all races and conditions of man have souls, the best of other animals have none. This is obviously a matter of pure speculation, which I must not now discuss. But I may direct the attention of your readers to a curious book published in Aberdeen in 1824, by Peter Buchan, entitled, "Scriptural and Philosophical Arguments or Cogent Proofs from Reason and Revelation that Brutes have Souls, and that their Souls are Immortal." The work in question is, however, now so rare, that it may be difficult to obtain even a perusal of it. The reader of German literature may also refer to a book on the same subject by Schmarda, to which my attention was called some time ago by the late Professor Day, of St. Andrews.

M. Houzeau animadverts on the anomaly that the persons, from whom we should expect the most valuable evidence regarding the mental acquirements or capacities of the lower animals—those who are habitually and intimately associated with them—drovers and drivers, horsemen and huntsmen, shepherds and sportsmen, jockeys and grooms, butchers, and even veterinarians, are those, on the contrary, in whom we too frequently meet with the strangest ignorance or prejudice. They would seem to be, as a rule, incapable of honestly observing and of making logical inferences from facts observed; instead of using their own eyes and reason, they permit themselves to be blinded and befooled by obsolete tradition or fable.

Notwithstanding the perfectly overwhelming bulk and variety of the literature of comparative psychology—or at least of the data on which it may be founded, there are many points in the mental history of the lower animals that require and admit of elucidation by *observation and experiment*. If any person of ordinary intelligence—either abroad or at home—feels inclined to plead, as an excuse from contributing to the progress of comparative psychology, the want of proper opportunity, I would commend to his consideration the example of M. Houzeau as a noble one of the successful "pursuit of knowledge under difficulties." He modestly describes himself as a traveller-naturalist: and in the letter above referred to thus refers to the circumstances under which he collected the materials for the two bulky volumes of *Études*, that constitute one of the most important contributions yet made to the science of comparative psychology. "It was rather occasionally that my attention was called to the subject of the 'Mental faculties of animals,' having been almost exclusively engaged, previous to my sojourn in America, in astronomical and geographical pursuits. Still the subject was pressed upon me when, in the wildernesses of Texas and Northern Mexico, I had to live in the open air, in the constant company of domestic animals and in close proximity to wild ones; far away," as he says, "from the European field of labour and even from intellectual resources," in a foreign wild land, without the means of literary or scientific reference. Under circumstances, in a word, most unfavourable to such a publication, he has nevertheless produced a work that would do honour to any of our own *savans*, with all the appliances of our large cities, large societies, and large libraries at their command. W. LAUDER LINDSAY

NOTES

FREE admission to the lectures and courses of practical instruction in Chemistry, Physics, Mechanics, and Biology at South Kensington will be granted to a limited number of Teachers and Students of Science Classes under the Science and Art Department, who intend to become Science Teachers. The selected candidates will also receive a travelling allowance, and a maintenance allowance of *1l.* *1s.* per week, while required to be present in London. The course in Chemistry will commence in October, and end in the following June. The course in Biology will commence in October and close in February or March. The course in Physics will commence about February and close in June. The course in Mechanics will probably commence about February and close in June. Students are required to attend from 9 or 10 A.M. to 4 or 5 P.M. daily, in addition to the time required in the evening for writing up their notes, &c. Candidates for these Studentships must send in their applications on Science Form No. 400, copies of which may be obtained on application to the Secretary of the Science and Art Department. For the courses in Biology and in Mechanics some power of drawing is essential, and no candidate will be admitted who cannot show that he has acquired sufficient power.

THE following courses of instruction of Science Teachers in connection with the Science and Art Department will probably be organised this summer:—1. Chemistry, Inorganic, 2. Chemistry, Organic, 4 weeks, commencing July 1, Prof. Frankland, F.R.S. 3. Magnetism and Electricity, 3 weeks, commencing June 24, Prof. Guthrie, F.R.S. 4. Heat and Light, 3 weeks, commencing July 17, Prof. Guthrie, F.R.S. 5. Botany, 4 weeks, commencing June 24, Prof. Thiselton Dyer. 6. Mechanics, 4 weeks, commencing June 25, Prof. Goodeve. 7. Geometrical Drawing, 3 weeks, commencing June 26, Prof. Bradley. Before definite arrangements can be made, however, it is necessary to know how many Teachers can and will take advantage of the courses; and therefore all Teachers who wish to attend are required to fill up and return a form (Science Form, No. 500), which may be obtained by application to South Kensington. If more Teachers apply to attend than can be accommodated at any course, those will be selected who have passed the highest examinations—in which the result of the present May Examination will be counted—and have had the most successful classes. The Teachers who are selected, and who attend one or more of the courses, will receive 2nd class railway fare and 30*s.* a week while in London.

IN connection with St. John's College, Cambridge, there will be offered for competition, in December 1873, an Exhibition of 50*l.* per annum for proficiency in Natural Science, the Exhibition to be tenable for three years in case the Exhibitioner have passed within two years the previous examination as required for candidates for honours; otherwise the Exhibition to cease at the end of two years. Candidates will have a special examination in (1) Chemistry, including practical work in the laboratory; (2) Physics (viz., Electricity, Heat, Light); (3) Physiology. They will also have the opportunity of being examined in one or more of the following subjects:—(4) Geology; (5) Anatomy; (6) Botany; provided that they give notice of the subjects in which they wish to be examined four weeks prior to the examination. No candidate will be examined in more than three of these six subjects, whereof one at least must be chosen from the former group. It is the wish of the Master and Seniors that excellence in some single department should be specially regarded by the candidates. They may also, if they think fit, offer themselves for examination in any of the classical or mathematical subjects. Candidates must send their names to one of the tutors fourteen days before the commencement of the examination. The tutors are the Rev. S. Parkinson, D.D., Rev. T. G. Bonney, B.D., and J. E. Sandys, Esq., M.A.

FROM Prof. E. D. Cope we have received the description of two apparently new fossil mammalian forms from the Eocene of Wyoming, which he places among the Carnivora. *Mesonyx obtusidens* forms, according to the author, a distinct family of the fissiped Carnivora, most closely related to the Canidæ, with weakly sectorial teeth, four of them being true molars (a marsupial character), and short, flattened, ungual phalanges in which there are no indications of collars for the reception of the nails themselves. *Synoplotherium lanius* may be a Carnivore, but the claws were flat, and the scaphoid of the carpus did not anchylose with the lunare, which shows that it belongs to a more generalised type. It must be remembered that Prof. Marsh has described very similar forms from the same strata.

MESSRS. WILLIAMS AND NORGATE have just issued the prospectus of a unique and most elaborate work by Mr. Herbert Spencer, consisting to a large extent of the tabulated material which he has accumulated for his "Principles of Sociology." In preparation for the latter work, requiring as bases of induction large accumulations of data, fitly arranged for comparison, Mr. Herbert Spencer, some five years ago, commenced, the collection and organisation of facts presented by societies of different types, past and present. Though this classified compilation of materials was entered upon slowly to facilitate his own work, yet, after having brought the mode of classification to a satisfactory form, and after having had some of the tables filled up, the results appeared likely to be of such value that Mr. Spencer decided to have the undertaking executed with a view to publication: the facts collected and arranged for easy reference and convenient study of their relations, being so presented, apart from hypotheses, as to aid all students of Social Science in testing such conclusions as they have drawn and in drawing others. The work consists of three large divisions. Each comprises a set of tables exhibiting the facts as abstracted and classified, and a mass of quotations and abridged extracts, otherwise classified, on which the statements contained in the tables are based. The condensed statements, arranged after a uniform manner, give at one view, in each table or succession of tables, the phenomena of all orders which each society presents—constitute an account of its morphology, its physiology, and (if a society having a known history) its development. On the other hand, the collected extracts, serving as authorities for the statements in the tables, are (or rather will be, when the work is complete) classified primarily according to the kinds of phenomena to which they refer, and secondarily according to the societies exhibiting these phenomena; so that each kind of phemonenon, as it is displayed in all societies, may be separately studied with convenience. The three divisions, each thus constituted, comprehend three groups of societies:—(1) *Uncivilised Societies*; (2) *Civilised Societies—Extinct or Decayed*; (3) *Civilised Societies—Recent or still Flourishing*. Several sample tables have been sent us, and as a specimen of the classifactory headings under which the immense array of facts are grouped, we shall give those belonging to Table IX. of Division I. ("Uncivilised Races"), the Sandwich Islanders, one of the Malayo-Polynesian Races. First are given their Inorganic Environment (Climate, Surface); Organic Environment (Vegetal, Animal); Sociological Environment (adjacent tribes), Physical, Emotional, and Intellectual Characters. Then follow the tables, divided into Structural and Functional, each of which is subdivided into Operative and Regulative. The Structural Operative is again subdivided into Operative and Regulative; the Structural Regulative is subdivided into Political (*Civil*, [Domestic, (Marital, Filial), Public], *Military*), Ecclesiastical, and Ceremonial (*Mutilations*, *Funeral Rites*, *Laws of Intercourse*, *Habits and Customs*). Under Functional, the Regulative is subdivided into Sentiments (*Æsthetic*, *Moral*), Ideas (*Superstitions*, *Knowledge*), and Language; the Operative into Processes (*Distribution*, *Exchange*, *Production*, *Arts*, *Rearing*, &c.), and Products (*Land-Works*, *Habitations*, &c., *Food*, *Clothing*, *Implements*, *Weapons*, *Æsthetic Products*). Under each final subdivision ample details are given. The value of such a work to all students of sociology, and of mankind generally, will be inestimable.

SIR JOSIAH MASON, who has already built and endowed an orphanage at Erdington, near Birmingham, at a cost of more than a quarter of a million, has now arranged to erect and endow a Scientific College in Birmingham, for which will probably be expended at least an equal amount. The *Times* gives the following details:—During his long experience as a manufacturer, Mr. Mason became deeply convinced of the want of and necessity for "thorough systematic scientific instruction, specially adapted to the practical, mechanical, and artistic requirements" of the Midland district, and to this want he has determined to devote a portion of his remaining property to supply. The institution is to be called "Josiah Mason's College," or "Josiah Mason's College for the Study of Practical Science." Regular systematic instruction is to be given in mathematics, abstract and applied physics, both mathematical and experimental; chemistry, theoretical, practical and applied; the natural sciences, especially geology and mineralogy, with their application to mines and metallurgy; botany, and zoology, with special application to manufactures; and physiology, with special reference to the laws of health. The English, French, and German languages will also be taught. The trustees have power to include mechanics and architecture and all other subjects necessary to carry out the objects of the founder. Mere literary education and instruction are excluded, as well as all teaching of theology and subjects purely theological. No principal, professor, teacher, or other officer of the college is ever to be called upon to make any "declaration as to or submit to any test whatever of their religious or theological opinions," nor are these in any wise to be considered either as qualifications or disqualifications for holding any office, fitness to give the instruction required being the sole and only test.. Provision is also made for giving lectures and opening classes for popular or unsystematic instruction, at which the attendance shall be open to all persons, "without distinction of age, class, creed, race, or sex." The founder's object being to promote the prosperity of the manufactures and industry of the country, especially of the two towns so frequently named, the college will be open to qualified persons of all classes who have to rely on science, art, or manufactures for a livelihood, "especially the more intelligent youth of the middle class." Provision is also made, when the funds permit it, to provide instruction for females as well as males. The site selected for the college is in the centre of the town, and the land is therefore of the greatest value, and the generous founder has already laid out upwards of 20,000*l.* on the site. He has also conveyed landed property producing about 600*l.* a year, and there is a clause in the deed in which he states it to be his intention to devote by his will additional funds for the use of the college. The total amount of this noble endowment cannot, therefore, be positively stated, as it will, of course, depend upon circumstances. Enough, however, has already been done to render the "Josiah Mason College" one of the most princely gifts yet made to posterity in England by any of her wealthy sons.

THE forthcoming number of Petermann's *Mittheilungen* will contain an interesting article compiled from the Australian papers, giving an account of a three months' journey during August, September, and October of last year into the interior of Australia, by Mr. Ernest Giles, accompanied by Messrs. Carmichael and Robinson. They struck off from the route of the overland telegraph at Chambers's Pillar, about 133° 55′ E. long., and 24° 53′ S. lat., and journeyed in a north-west direction along Finke Creek, traversing ground which has not hitherto been explored. They passed among long ranges of hills, lying in an east and west direction, and varying in height from a few hundreds to 4,000 ft., though few of the heights are apparently above 1,000 ft. At about the 24th parallel, in 133° N., they came upon multitudes of magnificent fan palms growing along the bed of the creek; they named the place the "Glen of Palms." Their journey in this direction extended to 129° 55′ W., and about 23° 10′ S., the utter sterility of the region and the want of water compelling them to turn back. It was only during the last few days, however, of their western journey that water became scarce. The most characteristic vegetation throughout was Spinifex; Casuarina was also of frequent occurrence. Travelling for about 100 miles in a southern direction, the explorers came upon an extensive salt marsh, apparently from Petermann's map upwards of 100 miles long and from 6 to 7 miles broad; Baron von Müller has named this Amadeus Lake. After staying here for a few days, Giles and his companions struck northwards for about 40 miles, and then south-eastwards, passing numerous creeks and a range of hills, "Gill Range," and meeting the Finke again on November 16, not far from their starting-point. Altogether these plucky explorers travelled 1,300 English miles, and have added considerably to our knowledge of the interior of Australia.

UNDER the name of "Herbarium Mycologicum Œconomicum," F. Baron Thümen proposes to form a collection of those parasitic fungi which are injurious (including, also, any that are useful) in forestry, agriculture, horticulture, or in any other branch of industry. The specimens of each species will be labelled with the scientific name, diagnosis, and any needful remarks, and, where possible, will be sufficiently numerous for a portion to be submitted to microscopic examination. The collection will be issued in fasciculi of fifty species, at the price of three thalers each, and may be obtained of the collector, at Teplitz, in Bohemia.

WE regret to learn that Mr. Louis Fraser, at one time prominently connected with the Zoological Society of London, author of the "Zoologia Typica," and a professional taxidermist of high repute, is suffering from destitution, in his old age, in British Columbia. On April 7 last a communication was presented before the meeting of the Academy of Sciences of San Francisco on this subject by Mr. Henry Edwards, one of the members, and an appeal for assistance was made to the friends of science. This was answered by contributions on the part of several persons, but it is not stated to what extent.

THE anniversary meeting of the Royal Geographical Society was held on Monday, Sir Henry Rawlinson in the chair. Sir Bartle Frere was elected President, and the Earl of Derby, Sir H. Rawlinson, Sir R. Alcock, and Admiral Richards, vice-presidents. The retiring president, in his valedictory address, reviewed at some length the progress of scientific exploration during the past year.

AT the special request of Rear-Admiral Sands, the U.S Congress, at its last session, allowed an appropriation for the purpose of completing and publishing the catalogue of southern stars, observed by Gilliss in 1850-52, and the work is now being put in the hands of computers for publication as soon as possible.

A SLIGHT shock of earthquake was felt on the morning of April 14, at Goalparah, Assam.

ADDITIONS to the Brighton Aquarium during the past week: Smooth Hound (*Mustelus vulgaris*); Skate (*Raja batis*); Gurnards (*Trigla lyra*); John Dorée (*Zeus faber*); Scad, or Horse Mackerel (*Trachurus trachurus*); Lump-fish (*Cyclopterus lumpus*); Turbot (*Rhombus maximus*); Common Carp (*Cyprinus carpio*); Gold and Silver ditto (*Carassius auratus*); Tench (*Tinca vulgaris*); Herrings (*Clupea harengus*); Sharp-nosed Eels (*Anguilla vulgaris*); Sand-launce (*Ammodytes lancea*); Garfish (*Belone vulgaris*); Zoophytes, *Actinoloba dianthus, Tubularia indivisa, Sertularia cupressina, Obelia geniculata, Pleurobrachia pileus.*

THE additions to the Zoological Society's Gardens during the past week include two Cretan Ibexes (*Capra picta*), presented by Mr. T. B. Sandwith; a Macaque Monkey (*Macacus cynomolgus*); a Rhesus Monkey (*M. erithraeus*) from India, and a Vervet Monkey (*Cercopithecus lalandii*) from South Africa, presented by Mr. H. N. Hewett; a dark-green Snake (*Zamenis atrovirens*). and a four-lined Snake (*Coluber quadrilineatus*) from Malta, presented by Mr. C. A. Wright; a pig-tailed Monkey (*Macacus nemestrinus*) from Java; a Malabar Parrakeet (*Palaeornis columboides*) from South India; an olive Weaver Bird (*Hyphantornis capensis*), from South Africa, purchased; a Brazilian Tapir (young) (*Tapirus terrestris*) from South America; a Harpy Eagle (*Thrasaëtus harpyia*) from South America, deposited; four variegated Sheldrakes (*Tadorna variegata*), and four ruddy Sheldrakes (*T. rutila*) hatched in the Gardens.